



T H E F O U R T H A N N U A L

Water Quality

R E P O R T

Every day more than 100,000 citizens in Lynchburg and the surrounding communities can depend on clean, safe drinking water. The Lynchburg Department of Public Work's Utilities Division is proud to present you with specific information about your drinking water because it demonstrates how consistent hard work pays off. This report shows that your drinking water is even better than the federal and state standards for safety and purity. In fact, the City's water has always been in compliance with regulations.

The City of Lynchburg constantly monitors for constituents in your drinking water in accordance with federal and state regulations. The table in this report shows what constituents were detected for the period of January 1 to December 31, 2001.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at 1-800-426-4791.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production and can also come from gas stations, urban stormwater runoff, and septic systems.
- Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water which must provide the same protection for public health.



Where does our water come from?

Lynchburg's primary water source is the 125-acre Pedlar Reservoir. Water is also drawn from the James River. The City is fortunate to have two plentiful sources of good water. Unlike many other cities in the state, Lynchburg has not had to place water-use restrictions on its citizens and businesses during drought conditions. As the City grows, we will have to pull more water from the James River. Reservoir water and river water are cleaned with the same treatment process, and both provide the same clean, clear water that we are so lucky to have.

Who monitors the City's water quality?

The Virginia Department of Health and the U.S. Environmental Protection Agency (EPA) set the stringent regulations that the City uses to ensure that you receive safe drinking water. While the agencies do have a regulatory role, the City considers them partners in its efforts to deliver clean, safe drinking water to its customers. Lynchburg also provides water to its neighbors in surrounding counties. These county and city governments work together and with the regulatory agencies to protect water quality in the area. This history of cooperation helps make Region 2000 attractive to businesses, which brings jobs to citizens and income to the localities.



What does the City test for?

The City is required to test your water for numerous contaminants, which could come from a wide variety of sources. Regulations do not require a detailed report for those constituents that have not been detected. The following is a complete list of all of the constituents for which the City tests.

Microbiological contaminants:

- Total coliform bacteria
- Fecal coliform bacteria
- Turbidity

Radioactive contaminants:

- Beta/photon emitters
- Alpha emitters

Inorganic contaminants:

- Antimony
- Arsenic
- Asbestos
- Barium
- Beryllium
- Cadmium

- Chromium

- Copper
- Cyanide
- Fluoride
- Lead

- Mercury (inorganic)
- Nitrate (as Nitrogen)
- Nitrite (as Nitrogen)
- Selenium
- Thallium

Synthetic organic contaminants including pesticides and herbicides:

- 2,4-D
- 2,4,5-TP [Silvex]
- Acrylamide
- Alachlor
- Benzo (a) pyrene [PAH]
- Carbofuran
- Chlordane
- Dalapon
- Di(2-ethylhexyl)adipate
- Di(2-ethylhexyl)phthalate
- Dibromochloropropane

- Dinoseb

- Diquat
- Dioxin [2,3,7,8-TCDD]
- Endothall
- Endrin
- Epichlorohydrin
- Ethylene dibromide
- Glyphosate
- Heptachlor
- Heptachlor epoxide
- Hexachlorobenzene
- Hexachlorocyclopentadiene
- Lindane
- Methoxychlor
- Oxamyl [Vydate]
- PCBs [Polychlorinated biphenyls]
- Pentachlorophenol
- Picloram
- Simazine
- Toxaphene

Volatile organic contaminants:

- Benzene

- Carbon tetrachloride
- Chlorobenzene
- o-Dichlorobenzene
- p-Dichlorobenzene
- 1,2-Dichlorobenzene
- 1,1-Dichloroethylene
- cis-1,2-Dichloroethylene
- trans-1,2-Dichloroethylene
- Dichloromethane
- 1,2-Dichloropropane
- Ethylbenzene
- MTBE [Methyl tertiary butyl ether]
- Styrene
- Tetrachloroethylene
- 1,2,4-Trichlorobenzene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethylene
- TTHMs [total trihalomethanes]
- Toluene
- Vinyl Chloride
- Xylenes



What were this year's test results?

As you can see from the table below, our system had no violations in 2001. We're proud that your drinking water meets or exceeds all federal and state requirements. We have learned through our monitoring and testing that some constituents have been detected. The EPA has determined that your water is completely safe at these levels.

Contaminant	violation	level detected	measurement unit	MCLG	MCL	likely source of contamination
Microbiological contaminants						
Turbidity	No	0.15 (highest) 100% < 0.5	NTU	n/a	TT	soil runoff
Radioactive contaminants						
Alpha emitters	No	0.5 - 0.7	pCi/l	0	15	erosion of natural deposits
Beta/photon emitters	No	1.0 - 1.1	pCi/l	0	50	decay of natural and man-made deposits
Inorganic contaminants						
Copper*	No	90th % 0.0590 0 above action level	ppm	1.3	AL=1.3	corrosion of household plumbing systems, erosion of natural deposits, leaching from wood preservatives
Fluoride	No	1.14 (highest avg.) 0 - 1.43 (range)	ppm	4	4	erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories.
Lead*	No	90th % 2.3 0 above action level	ppb	0	AL=15	corrosion of household plumbing systems, erosion of natural deposits
Nitrate + Nitrite (as Nitrogen)	No	0.06 - 0.07	ppm	10	10	runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Volatile organic contaminants						
TTHM (total trihalomethanes)	No	College Hill 51 (highest avg.) 5 - 92 (range)	ppb	0	100	by-product of drinking water chlorination

* Data from 2000; test is required only every three years.

Glossary

Several terms used in this document may be unfamiliar to you. Many of them are units of measurement and are required language in this report.

Constituents and contaminants — Any substances, whether naturally occurring or otherwise, that are found in a public water source. All water, including bottled water, contains certain levels of contaminants; however, the water is not considered unhealthy unless the contaminants exist in concentrations that surpass certain levels. Sometimes additives are present as byproducts of the purification process or introduced to promote public health (e.g. fluoride).

Non-detects (ND) — Laboratory analysis indicates that the constituent is not present.

Parts per million (ppm) or Milligrams per liter (mg/l) — Ratio that corresponds to one minute in two years or a single penny in \$10,000.

Parts per billion (ppb) or Micrograms per liter — Ratio that corresponds to one minute in 2,000 years or a single penny in \$10 million.

Picocuries per liter (pCi/l) — Measure of radioactivity in water.

Nephelometric Turbidity Unit (NTU) — Measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

Action Level — The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

Treatment Technique (TT) — A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

Maximum Contaminant Level (MCL) — The "Maximum Allowed" (MCL) is the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Contaminant Level Goal — The "goal" (MCLG) is the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.



How is our water treated?

The City has two water filtration and treatment plants: the College Hill Filtration Plant and the Abert Filtration Plant. Both plants underwent renovations in 1985 and have high-rate filtration capacity and computerized data control systems.

Lime is added to the water at the Pedlar Reservoir to raise the alkalinity. When the water reaches the treatment facility, alum is added to coagulate particles, fluoride is added to promote dental health, and chlorine is added for disinfection. After mixing, the water flows into basins where the particles clump together, become heavy, and settle to the bottom. Then the water goes through filters that remove particles, taste, and odor. The filters also remove chlorine. The water is finished by adjusting the pH and adding a rust inhibitor to protect pipes. As a final step, chlorine is added back into the water as required by health standards.

Lynchburg's water is distributed to more than 20,000 households through a network of 450 miles of pipes. Hourly quality control tests are performed by the City's chemist and water treatment plant operators to assure the treated water meets stringent standards. Staff is on duty at all times to ensure continuous water purity and to respond to emergencies such as water main breaks.

Are some people more sensitive?

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons, such as persons undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly and infants, can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791.



What causes water to be rust-colored?

Water can become discolored for several reasons. The most common reasons in Lynchburg are when a main water pipe breaks or when the Fire Department turns on fire hydrants, either to put out a fire or to maintain the system. In all of these cases, a sudden surge of water or a sudden change in the normal direction of the water flow can cause sediment to get mixed into the water. This sediment is perfectly normal and comes from oxidation particles in the pipes. Discolored water can be used for household and sanitary purposes, but the City does not recommend drinking discolored water or using it for laundry because it can stain clothing. Once the pipes are back to normal, the discolored water is flushed through the system and is replaced by fresh water.

Hydrant flushing, which sometimes causes discolored water, is part of maintaining the City's fire protection system. Hydrant flushing is necessary to make sure the hydrants are in working order and water flow is adequate. Lynchburg has the highest rating in Central Virginia from the Insurance Services Office for its ability to respond to fires.

What if I have questions?

Call the City's Utilities Division at 847-1322 to report water or sewer problems 24 hours a day. You may contact Leslie Gryder at the same number if you would like further information about Lynchburg's water quality or related issues.

Also, take a look at the City's Web site for all sorts of information—including more information about your water quality! The Web site address is www.lynchburgva.gov.

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